

JOURNAL OF COLLOID AND INTERFACE SCIENCE

EDITORS-IN-CHIEF

Milton Kerker

*Clarkson College of Technology
Potsdam, New York*

A. C. Zettlemoyer

*Lehigh University
Bethlehem, Penna.*

ADVISORY BOARD

A. W. Adamson
Los Angeles, Calif.

C. N. Davies
Essex, England

Per Ekwall
Stockholm, Sweden

Tomlinson Fort, Jr.
Cleveland, Ohio

F. C. Goodrich
Potsdam, New York

T. W. Healy
Victoria, Australia

G. M. Hidy
Thousand Oaks, Calif.

I. M. Krieger
Cleveland, Ohio

J. Lucassen
Cheshire, England

Avrom I. Medalia
Cambridge, Mass.

J. C. Melrose
Dallas, Texas

H. M. Princen
Edgewater, N. J.

Anthony Schwartz
Rockville, Maryland

L. E. Scriven
Minneapolis, Minn.

K. S. W. Sing
Middlesex, England

Robert Stromberg
Washington, D. C.

P. L. Walker, Jr.
University Park, Pa.

George Zografi
Ann Arbor, Mich.

Victor K. La Mer, Founding Editor
(1895-1966)

Volume 45
1973



ACADEMIC PRESS
New York and London

A Subsidiary of Harcourt Brace Jovanovich, Publishers

COPYRIGHT © 1973, BY ACADEMIC PRESS, INC.

ALL RIGHTS RESERVED

NO PART OF THIS VOLUME MAY BE REPRODUCED IN ANY FORM,
BY PHOTOSTAT, MICROFILM, BY RETRIEVAL SYSTEM, OR ANY
OTHER MEANS, WITHOUT WRITTEN PERMISSION FROM THE
PUBLISHERS.

Made in the United States of America

Contents of Volume 45

NUMBER 1, OCTOBER 1973

D. DEN ENGELSEN. Monolayers and Multilayers of Arachidic Acid with Rhodamine 6G.....	1
R. J. MANNHEIMER. Calculation of Viscosity from Immiscible Displacement of Highly Viscous Materials in Capillary Tubes.....	11
DOUGLAS W. COOPER AND PARKER C. REIST. Neutralizing Charged Aerosols with Radioactive Sources.....	17
KAISSAR M. HANNA, IVAN ODLER, STEPHEN BRUNAUER, JULIUS HAGYMASSY, JR., AND E. E. BODOR. Pore Structure Analysis by Oxygen Adsorption. I. <i>t</i> -Curves and Methods of Analysis.....	27
KAISSAR M. HANNA, IVAN ODLER, STEPHEN BRUNAUER, JULIUS HAGYMASSY JR., AND E. E. BODOR. Pore Structure Analysis by Oxygen Adsorption. II. Analysis of Five Silica Gels.....	38
E. R. SMITH, D. J. MITCHELL, AND B. W. NINHAM. Deviations of the van der Waals Energy for Two Interacting Spheres from the Predictions of Hamaker Theory.....	55
P. RICHMOND, B. W. NINHAM, AND R. H. OTTEWILL. A Theoretical Study of Hydrocarbon Adsorption on Water Surfaces Using Lifshitz Theory.....	69
J. A. FINCH AND G. W. SMITH. Dynamic Surface Tension of Alkaline Dodecylamine Solutions.....	81
E. P. HONIG, J. H. TH. HENGST, AND D. DEN ENGELSEN. Langmuir-Blodgett Deposition Ratios.....	92
D. T. PECHEY AND A. M. JAMES. Surface Conductivity Measurements at an Ionogenic Surface.....	103
J. R. BROCK AND M-S WU. Field Charging of Aerosol Particles.....	106
E. RUCKENSTEIN. Positive and Negative Nucleation Catalysis in Crystallization.....	115
R. E. PAGANO AND I. R. MILLER. Transport of Ions Across Lipid Monolayers. IV. Reduction of Polarographic Currents by Spread Monolayers.....	126
ROBERT EVANS AND D. H. NAPPER. On the Calculation of the van der Waals Attraction Between Latex Particles.....	138
M. J. D. LOW AND P. L. LEE. Infrared Study of Adsorption <i>in situ</i> at the Liquid-Solid Interface. V. Adsorption of Octadecanol, Octadecylamine, and Octadecanedioic Acid on Silica, and a Criterion for Considering Competitive Adsorption.....	148
G. G. LITVAN. Phase Transitions of Adsorbates. V. Aqueous Sodium Chloride Solutions Adsorbed in Porous Silica Glass.....	154
N. ASTING, A. GAGLANI, AND W. H. NELSON. The Measurement of Optical Anisotropies of Molecules in Aqueous Solutions by Light Scattering at 6328 Å....	170

E. D. BAILY AND B. R. JENNINGS. An Apparatus for Measurement of Electrically Induced Birefringence, Linear Dichroism, and Optical Rotation of Macromolecular Solutions and Suspensions.....	177
G. I. BEREZIN, A. V. KISELEV, AND A. A. KOZLOV. Equilibrium of Adsorbate and Capillary Condensate with Bulk Crystal Phase at Temperatures Below the Normal Melting Point.....	190
T. TROUWBORST, J. C. DE JONG, AND K. C. WINKLER. Inactivation of the Enzyme Trypsin in Aerosols.....	198

NOTES

JOAQUIN CORTES. Some Considerations on Fowkes' Theory.....	209
J. B. SMITHAM, D. V. GIBSON, AND D. H. NAPPER. Polystyrene Lattices as Model Colloidal Dispersions.....	211
R. G. LAYTON. Ice Nucleation by Silver Iodide: A New Size Effect.....	215

LETTER TO THE EDITORS

GABRIELLA GABRIELLI AND MARTA PUGGELLI. Polymethylmethacrylate and Polyethylmethacrylate at the Water/Oil Interface.....	217
--	-----

OBITUARY

R. L. ROWELL, F. T. GUCKER (1900-1973).....	220
---	-----

NUMBER 2, NOVEMBER 1973

J. A. PALMER, III, H. B. HOPFENBERG, AND R. M. FELDER. Effects of Solute-Membrane Interactions on Flux-Limiting Concentration Polarization in Ultrafiltration Processing.....	223
F. MACRITCHIE. Effects of Temperature on Dissolution and Precipitation of Proteins and Polyamino Acids.....	235
CHARLES J. CANTE, JOHN R. FROST, JOHN HORNYAK, AND HENRI L. ROSANO. Foamability and Foam Stability of Aminohydroxy Salts of Long Chain Sulfates and Carboxylates.....	242
J. HABER, J. NAJBAR, J. PAWELEK, AND J. PAWLIKOWSKA-CZUBAK. Thermodynamics and Kinetics of the Adsorption of <i>n</i> -Heptane on Type 5A Molecular Sieves.....	252
SADAKATSU NISHIKAWA. Ultrasonic Absorption in Aqueous Solutions of <i>n</i> -Octylamine Structural Relaxation in Mesomorphic State.....	259
M. TERNAN. A Theoretical Equation for the Adsorption <i>t</i> -Curve.....	270
JOHN G. WATTERSON AND MARCUS C. SCHAUB. Shear Induced Structure Formation at the Air-Water Interface of Aqueous, Synthetic Polymer Solutions...	280
J. A. LEE, C. E. NEWNHAM, F. S. STONE, AND F. L. TYE. Temperature Programmed Desorption Studies on γ -Phase Manganese Dioxide in Static Water Vapor Environments.....	289
WAYNE W. Y. LAU AND CHARLES M. BURNS. Kinetics of Spreading Polystyrene Melts on Plane Glass Surfaces.....	295

A. OKAGAWA, R. G. COX, AND S. G. MASON. The Kinetics of Flowing Dispersions. VI. Transient Orientation and Rheological Phenomena of Rods and Discs in Shear Flow.....	303
A. OKAGAWA AND S. G. MASON. The Kinetics of Flowing Dispersions. VII. Oscillatory Behavior of Rods and Discs in Shear Flow.....	330
A. J. PATITSAS. A Simple Method for Determining the Size of a Sphere from the Extrema of the Scattering Intensity. I. Dielectric Sphere.....	359
T. WALKER. The Influence of Surface Active Agents on the Structure of Water....	372
I. J. LIN, J. P. FRIEND, AND Y. ZIMMELS. The Effect of Structural Modifications on the Hydrophile-Lipophile Balance of Ionic Surfactants.....	378
A. G. BEZUS, A. V. KISELEV, A. A. LOPATKIN, AND PHAM QUANG DU. Molecular-Statistical Calculation of Thermodynamic Characteristics of Ethane Adsorption by Zeolites NaX and NaY.....	386
R. L. REEVES, R. S. KAISER, AND H. W. MARK. The Nature of Species Giving Spectral Changes in an Azo Dye on Interaction with Cationic Surfactants Below the Critical Micelle Concentration.....	396
KUNIO TAKEDA AND TATSUYA YASUNAGA. Kinetic Study of Sodium Decyl Sulfate Micelle Dissociation by the Relaxation Method.....	406
R. J. MANNHEIMER. Measurement of Non-Newtonian Viscosity by Immiscible Displacement.....	413

NOTE

ROBERT H. NOTTER AND JOHN C. BERG. Transport Resistance of Dipalmitoyl and Rat Lung Lecithin Films.....	421
D. N. WINSLOW AND SIDNEY DIAMOND. The Specific Surface of Hydrated Portland Cement Paste as Measured by Low-Angle X-Ray Scattering.....	425
P. SHERMAN. Rheology of Interfaces and Emulsion Stability.....	427

BOOK REVIEWS.....	430
-------------------	-----

NUMBER 3, DECEMBER 1973

E. ST. A. JORDINE. Specific Interactions which Need Nonequilibrium Particle/Particle Models.....	435
R. LAMBERT AND N. SINGER. An Isomer Effect on the Chemisorption of the Pentanols on Cab-O-Sil.....	440
JEAN-JACQUES PRÉDALI AND JEAN-MAURICE CASES. Zeta potential of Magnesium Carbonates in Inorganic Electrolytes.....	449
D. NICHOLSON AND J. H. PETROPOULOS. Influence of Adsorption on the Flow of Dilute Gases through Porous Media.....	459
DIETER WALZ AND FRANZ GRÜN. The Radial Velocity of Spherical Particles in Tubular Pinch Effect Experiments.....	467
J. V. BOYD, J. R. MITCHELL, L. LEONS, P. R. MUSSELWHITE, AND P. SHERMAN. The Mechanical Properties of Milk Protein Films Spread at the Air-Water Interface.....	478

BRUCE W. DAVIS AND ROBERT A. MAGEE. Isosteric Heats of Adsorption for Neopentane on Ammonium Iodide in the Region of the α - β Phase Transition	487
MOTOYOSHI HATADA, MASANAOKU NISHII, AND KOZO HIROTA. Radiation-Induced Polymerization of Monomolecular Film of Octadecyl Acrylate at Gas-Water Interface	502
GARY W. CLEARY AND JOEL L. ZATZ. Effect of a Dissolved Corticosteroid on the Surface Potential of Lipid Monolayers	507
R. A. BOTHAM AND C. THIES. The Adsorption Behavior of Mixtures of Styrene and Butadiene Polymers	512
E. EON AND G. GUIOCHON. Surface Activity Coefficients as Studied by Gas Chromatography: Comparison with Bulk Properties	521
Y. K. KUCHHAL, S. S. KATTI, AND A. B. BISWAS. Surface Potentials of Monomolecular Films of <i>n</i> -Long Chain Alkoxy Ethanols	529
STUART S. BARTON, MICHAEL J. B. EVANS, AND BRIAN H. HARRISON. Surface Studies on Carbon: Water Adsorption on Polyvinylidene Chloride Carbon	542
A. A. LUSHNIKOV. Evolution of Coagulating Systems	549
J. W. DOBBIE, ROBERT EVANS, D. V. GIBSON, J. B. SMITHAM, AND D. H. NAPPER. Enhanced Steric Stabilization	557
T. S. CHOW AND J. J. HERMANS. Random Force Correlation Function for a Charged Particle in an Electrolyte Solution	566
PETER MCFADYEN AND ALEC L. SMITH. An Automatic Flow Ultramicroscope for Submicron Particle Counting and Size Analysis	573
BARTON DAHNEKE. Measurements of Bouncing of Small Latex Spheres	584
P. SOMASUNDARAN AND R. D. KULKARNI. A New Streaming Potential Apparatus and Study of Temperature Effects Using It	591
EMIL SØRENSEN. On the Adsorption of Some Anionic Collectors on Fluoride Minerals	601
J. M. SINGER, F. C. A. VEKEMANS, J. W. TH. LICHTENBELT, F. TH. HESSELINK, AND P. H. WIESEMA. Kinetics of Flocculation of Latex Particles by Human Gamma Globulin	608
GEORGE H. WEISS, JAMES E. KIEFER, AND V. ADRIAN PAŞEGIAN. Effects of Dielectric Inhomogeneity on the Magnitude of van der Waals Interactions	615
BOOK REVIEWS	626
AUTHOR INDEX—Volume 45	628
SUBJECT INDEX—Volumes 42-45	630